**Company Responses to Consolidated Agencies' Comments on the A-12 Work Plan**

**8/4/2020**

On behalf of FMC Corporation and J.R. Simplot Company (the Companies), Golder Associates, Inc. (Golder) submitted the Work Plan for the A-12 Pit surface water diversion for the Gay Mine Site to the US Environmental Protection Agency and the US Bureau of Land Management (Agencies) and the Shoshone-Bannock Tribes (Tribes) on February 20, 2020. The Agencies and Tribes provided consolidated comments on May 7, 2020, which are included with our responses below. As discussed in a teleconference on May 12, 2020, the Companies consider the Work Plan to be a conceptual design document to obtain Agency and Tribal concurrence with the proposed design concepts, and intend for some of these comments to be resolved in a later deliverable where details of the design will be presented. Furthermore, in response to the Agencies' and Tribes' comments on the draft work plan, the Companies now propose to eliminate the open ditch for the majority of the diversion and extend the diversion pipeline the entire distance to the Dry Hollow Drainage. The use of a pipeline will eliminate the exposure of the diverted water to potentially contaminated soils and prevent seepage of the diverted water toward the A-12 pit. The following is the proposed design process:

1. Conceptual Design Alternatives – We submitted the draft Work Plan to describe the conceptual design alternatives and will finalize that Work Plan based on the work-plan-applicable comments and responses below, as well as revising the plan to include the full-length pipeline as the recommended design alternative. The Work Plan will also provide adequate detail for costing and alternative comparison purposes and will propose the recommended alternative.

2. Selection of the Conceptual Design Alternative – Once the Agencies and Tribes review the revised draft Work Plan and we have addressed subsequent review comments, the Companies, the Agencies and the Tribes will coordinate in selecting the recommended design alternative.

3. Conduct supplemental field surveys to fill-in data gaps (including those noted in the comments below), survey and map the conditions at the proposed Dry Hollow Drainage outfall, determine the low-point for culvert installation (near the intersection of Dry Hollow Road and Lone Pine Road), as well as other features along the proposed diversion route which may impact construction and were not previously mapped.

4. Engineering Design Report (EDR) and Drawings – Prepare preliminary engineering design report and drawings which will address the main details required to implement the selected alternative at the site. This deliverable will address any remaining comments not addressed in the revised Work Plan and will include the results of the supplemental field surveys.

5. Approval of EDR.

6. Prepare Construction Plans and Specifications.

7. Construct the A-12 Pit Diversion.

8. Submit Construction Completion Report with as-built drawings.

The Companies' comment responses are provided below taking into account the design process outlined above.

**General Comments:**

1. There is no discussion of water sampling to monitor this water at the outfall area. Please add to the document a sampling regime that can be refined in the post construction phase. Add the outfall to the spring/fall sampling plan. Add temperature and turbidity as well as all CERCLA COCs in the analysis.

   *Response: The Companies will expand Section 6.0- Recommended Alternative of the Work Plan to include a proposed surface water monitoring plan for the discharge to Dry Hollow Drainage.*

2. The headquarters area is just below ODA's. A ditch through this area will need to be constructed in such a manner that water will not infiltrate through potentially contaminated soil. Additionally, the ditch must be constructed with berms high enough that surface runoff will not enter the ditch and co-mingle with the clean pond water.

   *Response: The Companies will revise the Work Plan to eliminate the ditch and instead use a high-density polyethylene (HDPE) gravity pipeline for the entire length of the diversion.*

3. There is a backfilled pit (E-Pit) just east of the outfall area. Have you looked at the outfall area to determine what direction the water will flow once it leaves the pipe/ditch? Efforts must be taken to ensure the water does not flow into the pit.

   *Response: The proximity of previously mined areas, ODAs and Mill Shale piles is shown on the attached Figure 1. As shown on attached Figure 1, Pit E should be north of and at a higher elevation than the diversion pipe outfall location; however, The Companies will revise the Work Plan to add Section 7.0- Supplemental Survey, which will include a proposed field survey program to evaluate the actual conditions affecting the discharge location at the Dry Hollow Drainage. This supplemental surveying will include field reconnaissance of the entire diversion alignment and review of the proximity to backfilled mine pits near the outfall. Results of the field survey will be incorporated into the EDR.*

4. A site walk should be performed to look at field conditions. In terms of hydrology, how much extra water will be sent drainage through the ditch? How much water naturally accumulates in this area from large storm events? Please include these calculations.

   *Response: As will be noted in added section 7.0- Supplemental Investigation, The Companies will assess the proposed diversion alignment as part of the field investigation to optimize the location of the discharge point in Dry Hollow Drainage. Results will be incorporated into the EDR. We will also revise the Work Plan to include additional discussion of the existing hydrology in the area of the proposed diversion alignment.*

5. The proposed outfall area must be assessed for suitability to accept and contain the proposed outfall.

   *Response: As will be noted in added section 7.0- Supplemental Survey, The Companies will assess the proposed outfall to Dry Hollow Drainage. Results of the field survey will be incorporated into the EDR.*

6. Are there cattle trails in this area? If the water hits a cattle trail it could create a head cut that may be nearly impossible to contain.

   *Response: As will be noted in added section 7.0- Supplemental Survey, The Companies will assess proximity to cattle trails as part of the field survey to optimize the location of the discharge point in Dry Hollow Drainage. Results of the field survey will be incorporated into the EDR.*

**Specific Comments:**

1. **Page 2, Section 2.2, third paragraph, first sentence**. EPA agrees that upgradient spring-fed ponds are the main sources of water to the A-12 pit. However, we suspect there is also subsurface groundwater flow from upper ponds that will not be intercepted by proposed surface water diversion alternatives and continue to feed A-12 Pit. Pipeline invert elevations in the Upper Pond set at Elev 5740 will maintain a year-round reservoir water surface that will continue to feed Pond 2 and the A-12 Pit. Pond 1 has separate drainage area not included in Figure A – Drainage Area. Therefore Pond 1 will continue to feed Pond 2 and the A-12 Pit. The volume of subsurface groundwater flow has not been determined and would require a field investigation to measure the transmissivity of soils below the Upper Pond and between the Upper Pond and the lower ponds. EPA believes the A-12 project will meet its stated objective of diverting surface water flows around contaminated soils. That is useful and worthwhile, but additional work may be needed to address subsurface flows. Post-construction monitoring will be important to measure the impact of the project on contaminant loading to the A-12 pit.

   *Response: Noted. A-12 observations and sampling will continue to be completed during our spring and fall surface water sampling program. Additional action may be needed at the site following the A-12 diversion as part of the CERCLA Remedy.*

2. **Page 2, Section 2.2, third paragraph, fourth sentence**. Please provide the invert elevation of the CMP pipe that currently carries overflow from the Upper Pond to Pond 1.

   *Response: The existing CMP pipe invert elevation is provided in Appendix B. The Companies will revise the Work Plan to include the invert elevation in Section 2.2 of the text as well.*

3. **Page 3, Section 2.4, first paragraph:** Were any survey monuments located? DOI requires all monuments to be surveyed and replaced.

   *Response: The Companies will include survey control benchmarks, temporary benchmarks and survey monuments on the EDR drawings.*

4. **Page 3, Section 3.0, second paragraph, last sentence on page:** Do not use adjectives “low concentrations” or “slightly”. Revise throughout the document.

   *Response: The Companies will revise the Work Plan to remove those adjectives throughout the document and add ranges from lab data in parentheses.*

5. **Same sentence:** What does “general water quality guidelines” mean? State the water quality guidelines specifically.

   *Response: The Companies will revise the Work Plan to state that surface water in the A-12 Pit exceeds the human health and ecological screening levels established in the ongoing RI/FS process.*

6. **Page 3, same section, first paragraph, first sentence:** Do not use the word “elevated” without showing the concentrations.

   *Response: The Companies will revise the Work Plan to include the concentrations in parentheses when the word “elevated” is used.*

7. Same Section: The design is required to detail how overflow from larger events will be captured and where the water will be routed.

Response: The Companies will revise this section of the Work Plan to include a discussion of how overflow from high precipitation events would be handled and where it would be routed. We will include design of an overflow spillway in the EDR.

8. **Page 4, Section 4.1:** Annual inspections may not be appropriate. Include a discussion that outlines procedures for inspections after precipitation events that meet or exceed the approved design criteria or rain on snow event occurs.

   *Response: The requirements for inspections will be included in the discussion of the selected design alternative. The Companies will therefore expand Section 6.0- Recommended Alternative to define the high precipitation and snow melt events which would require follow-up inspections, in addition to annual inspections.*

9. **Same Section:** Plans are for excavated soil to be stockpiled along the length of the pipeline and ditch or adjacent to the pipeline and ditch, then graded to drain and blend with existing topography. Soil excavated adjacent to ODA's or in an area of suspected or confirmed runoff from ODAs must be sampled for COC's known or suspected at the site. Appropriate measures must be taken during if using for grading as to not cause further contamination.

   *Response: This area of the Site will be sampled using incremental sampling methods during the CERCLA remedial investigation. Regardless, the Work Plan will be revised to recommend a pipeline for the entire length of the diversion in order to effectively eliminate the concern of contaminated runoff impacting the pond. The work plan will also include provisions for excavation, backfill and placement of excess soils such that runoff from the disturbed soils is controlled, and appropriate measures are taken for protection of surface water bodies.*

10. **Page 4, Section 4.1, first paragraph.** The basis for choosing a pipe, a rock-lined ditch, and an unlined ditch should be described here. Is slope the defining factor that dictates the type of infrastructure? If so, what are the cutoff points? For example, if slope is >5% use pipe, between 2% and 5% use lined ditch and <2% use unlined ditch. This could make sense but doesn't appear to be the case – if anything, the ditch appears to be steeper than the pipeline based on the profile provided on Figure 4. If the defining factor is the potential for the water to pick up contaminants or for infiltration to generate contaminated shallow groundwater, soil contamination data in each of the three sections should be summarized and references provided to the relevant data report(s). Same comment applies to Section 4.2.

    *Response: The Companies will revise Section 6.0- Recommended Alternative to recommend a pipeline for the entire length of the diversion and will provide the design basis for the diversion pipeline.*

11. **Page 4, Section 4.1, first complete paragraph, first sentence:** STA 33+85 does not appear on any figure. Revise the necessary figure(s).

    *Response: The Companies will revise the Work Plan to propose a continuous pipeline for the entire length of the diversion; therefore, this outfall point will no longer exist.*

12. **Page 4, Section 4.1, third paragraph, second sentence**. Identify minimum cover over HDPE pipe at maintenance road crossings.

    *Response: The design criteria for the depth of pipe burial at road crossings discussed Section 4.1 apply to recommended Alternative B as well. Therefore, The Companies will expand Section 6.0-*

*Recommended Alternative to discuss the detailed design which will be included in the EDR, including pipe crossings and minimum depth of burial.*

13. **Page 5, Section 4.1, fourth paragraph, third sentence:** Rock-lined ditch to include "geotextile" – woven or unwoven? Geotextile class? Please revise with these details.

    *Response: The Companies will revise the Work Plan to propose a continuous pipeline for the entire length of the diversion; therefore, the rock lined ditch will be replaced with a pipe. The discharge of the pipe at Dry Hollow will have a rock-lined outfall which will include an underlying geotextile separation layer. Additional design and specifications for geotextiles will be included in the EDR.*

14. Same Section: Was consideration given to lining ditch to prevent stormwater infiltration into ground and reduce seepage into A-12 Pit? Please discuss.

    *Response: The Companies will revise the Work Plan to propose a continuous pipeline for the entire length of the diversion, which will effectively eliminate the infiltration from the ditch to the A-12 Pit.*

15. **Page 5, Section 4.2:** It is understandable to want to initiate flow with a pipeline then move to having water flow in a lined ditch. The pipeline should be buried at an adequate depth to avoid vandalism. At what depth will the pipeline be buried? Please include this detail in the Work Plan.

    *Response: Section 4.2 discusses the recommended alternative, Alternative B, diversion in general terms. The Companies will include the minimum depth of cover over the pipe to prevent vandalism in section 6.0 Recommended Alternative of the Work Plan (instead of section 4.2).*

16. Same Section: Provide detail on the inlet and outlet structures. They will need to be maintained on a regular basis to keep trash from building and to ensure free flow into and out of the pipe system and designed to prevent vandalism to the extent practicable.

    *Response: The Companies will expand Section 6.0- Recommended Alternative to discuss the detailed design which will be included in the EDR, including inlet and outlet structure design, recommended maintenance and design criteria to minimize the impact of vandalism.*

17. Same Section: At the point where the pipeline converts into the lined ditch, what design will you use to slow the velocity of the water? Will rock rip rap be enough to reduce erosion impacts to the designed ditch? Please discuss.

    *Response: The Companies will revise the Work Plan to propose a continuous pipeline for the entire length of the diversion, and will expand Section 6.0 - Recommended Alternative to discuss the detailed design which will be included in the EDR, including energy dissipation at the pipeline discharge into the Dry Hollow Drainage..*

18. Same Section: With the amount of overburden to the north of the HQ, there may be contributing factors of contaminants currently free flowing as runoff along the railroad tracks through Headquarters. Currently, spring run-off flows along the north side of the railroad tracks to an area where the railroad arc straightens out. Would the runoff co-mingle with water in the ditch? Please discuss.

    *Response: The Companies will revise the Work Plan to propose a continuous pipeline for the entire length of the diversion, which will not allow contaminated runoff or natural spring along the route to commingle with the diverted pond water in the pipeline.*

**19.** Same Section: There is a high point at that arc and it is unclear if the ditch would allow for water to continue to the discharge point or flow east into the pit close to the railroad tracks. Please discuss.

*Response: The Companies will revise the Work Plan to propose a continuous pipeline for the entire length of the diversion, and the pipe trench will be excavated at the appropriate grade through this area to allow for gravity drainage. This will be shown the revised Work Plan figures, and the engineering demonstration of the feasibility of discharge to the Dry Hollow drainage will be included in the EDR.*

**20.** Same Section: The ditch should be lined all the way to the designated outflow point, however, if the final approved design allows for an unlined ditch, the soils on these unlined areas portions should be tested to determine if there are any sources of contamination in those areas.

*Response: The Companies will revise the Work Plan to propose a continuous pipeline for the entire length of the diversion with no ditch.*

**21. Page 6, Section 4.2, first paragraph:** STA 14+93 does not appear on any figure. Revise the necessary figure(s).

*Response: The Companies will revise the Work Plan to propose a continuous pipeline for the entire length of the diversion; therefore, this outfall point will no longer exist.*

**22. Same Section, second paragraph:** You discuss plugging the outlet, why not remove the outlet and reshape the area? It is unclear why the outlet pipe would remain. Please discuss.

*Response: Section 4.2 discusses the recommended alternative, Alternative B, diversion in general terms. The Companies will include the rationale for plugging or removing the outlet in Section 6.0 - Recommended Alternative of the Work Plan (instead of section 4.2).*

**23. Page 6, Section 6.0.** What was the justification for maintaining the 2-foot freeboard for 50-year event?

*Response: The Companies will expand Section 6.0- Recommended Alternative to explain that a minimum 2 feet of freeboard in the Upper Pond is standard practice for wave action, ice, contingency, etc. while conveying the peak flow from the 25-year, 24-hour storm event (standard design storm event). A longer pipeline is now proposed to convey the flow to the Dry Hollow Drainage. The Companies will revise the hydraulic calculations for sizing that pipeline and provide them in the revised work plan.*

**24. Page 6, Section 6.0:** There are conceptual drawings for the pipe and outfall. It is unclear where the outfall is located, what it would look like, how it would drain etc. Would the water infiltrate or would it continue to flow and create a wetland environment? What soil sampling or geotechnical analysis have been performed to determine that the water, once it leaves the pipe/ditch, will flow to create a wetland and not simply infiltrate? Please revise with this information.

*Response: The Companies will add in new section 7.0- Supplemental Survey which will address the field surveying and mapping required to design the discharge to Dry Hollow Drainage. This will include reviewing soils and drainage conditions in the Dry Hollow Drainage during a site visit to identify a feasible discharge location and reviewing surveyed drainage grades so as to ensure downstream flow rather than pooling of the water that conceivably could saturate the soils for sufficient periods of time to develop a prevalence of wetland vegetation. Results of the field survey will be incorporated into the EDR.*

25. **Figures:** Alternative A & B & Extended Ditch Plan and Profile: Please use colorful lines to describe the layout/layouts. Change colors from pipeline to ditch to lined ditch etc.

    *Response: The Companies will revise the Work Plan figures to show the proposed continuous pipeline for the entire length of the diversion with no ditches.*

26. **Figure 5:** In general, EPA prefers Alternative B because of the relatively straight alignment. However, we are worried about the section of pipe proposed to run west / northwest along the road separating the Upper Pond from the lower ponds. It appears the pipe would then cross another road before heading west and into the ditch at the eastern end of the railroad tracks. Are these roads still in use? If yes, will the pipe be buried beneath the roads and is there any concern for heavy vehicle traffic over the pipe crossings? Please discuss.

    *Response: The pipe will be buried at a sufficient depth beneath road crossings for heavy vehicle (AASHTO H-20 highway loading) traffic, frost protection, etc. As noted in our response to specific question # 12, pipe crossing under the road will be addressed in EDR, with mention of this requirement in section 6.0 of the Work Plan.*

27. **Figure 7**: Details should also be provided for the pipe inlet, the ditch outlet at Dry Hollow, and the transition points from pipe to rock-lined ditch and rock-lined ditch to unlined ditch. There is no typical cross section for the unlined ditch, which the text says will be "upgraded." How deep will it be? Will the soil be compacted? Slope of sides? Also, a typical detail for a pipe clean-out should be provided. Revise with this information.

    *Response: The Companies will revise the Work Plan to propose a continuous pipeline for the entire length of the diversion; therefore, no ditch details will be necessary.*

28. **All Tables:** Express samples in mg/L. Revise all tables.

    *Response: The Companies will revise the Work Plan tables to express concentrations in mg/L.*

29. **All Tables:** Add the screening values to all columns for all constituents in the tables.

    *Response: The Companies will add the CERCLA RI/FS screening values to all columns for all constituents in the Work Plan tables.*

30. **Appendix A**. The photos are very helpful. Please add photos of the discharge point in Dry Hollow and the receiving water (stream?) downgradient. Photos of the existing ditch that will be upgraded would also be helpful.

    *Response: We will obtain the requested photos during a supplemental field visit and incorporate them into the EDR.*

31. **Appendix B.** Do the calculations all assume no snow (only rainfall on bare or vegetated ground)? A rain-on-snow event should be considered, if it can be modeled.

    *Response: The Companies has added calculations for a rain-on-snow event in Appendix B and noted in section 4.2.*

32. **Appendix B:** The Tribes are not in favor of using SmartDitch at the site. From observations at other sites, extremely labor intensive to keep cleaned out.

*Response: As noted in our responses above, The Companies will revise the Work Plan to propose a continuous pipeline for the entire length of the diversion, with no ditches or ditch lining. The Companies will include a detailed cleanout design and a summary of required inspection and maintenance procedures in the EDR*.

33. **Appendix B:** NRCS SSURGO Database (NRCS 2012) soils in the area are silt loams, categorized as Hydrologic Soil Group B. According to the Gay Mine PSR soils in the area also include Highams- gravely loams. The soils in the outfall should be sampled to confirm the hydrologic properties.

    *Response: Any discharge into Dry Hollow that does not infiltrate will flow through the existing culvert underneath the railroad tracks then through a new, upgraded culvert under Dry Hollow Road and into the Danielson Basin, where the surface water originally flowed prior to mine development. This will be discussed in the revised Work Plan. Therefore, it is not necessary to characterize the soils in Dry Hollow.*

34. **Appendix B:** 3 inches of sand needs to be deeper especially with any fractured rocks. This will prevent the pipe from getting holes in it in the future.

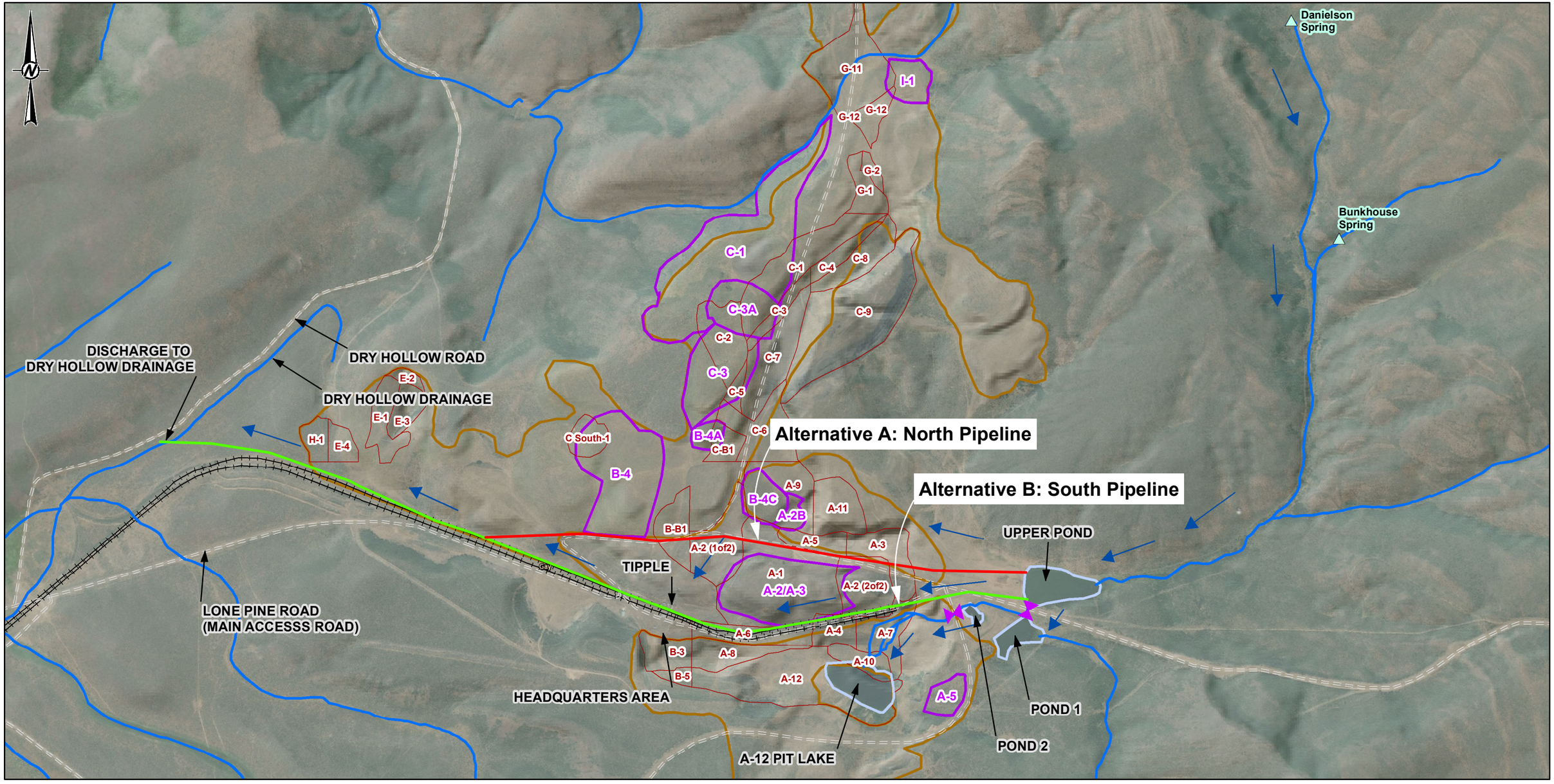
    *Response: the increased minimum thickness of sand below the pipe will be included in EDR, with mention of the requirement for the design of this bedding depth in section 6.0 of the Work Plan*.

35. **Site Layout Map:** How much water is expected to fill the low area at the point of discharge? Have calculations been performed to ensure that the water at the discharge point will not inundate Dry Hollow Road? There is very little free board for water to exist in this area without impacting the road. It is possible that Dry Hollow Road may become overwhelmed with water. It is possible that and the Dry Hollow Road may need to be moved uphill anywhere from an estimated 200-300 feet in elevation. What calculations have you performed for how much water will be re-routed and how much water this area will be able to receive?

    *Response: The Companies will add in new section 7.0 - Supplemental Survey which will describe how The Companies will assess the proposed outfall area, including field surveying and mapping required to design the discharge to Dry Hollow Drainage and a culvert under the Dry Hollow Road. Results of the field survey with calculations and modeling to demonstrate the capacity of the culverts to avoid flooding Dry Hollow Road will be incorporated into the EDR.*

**Attachment**

*Figure 1 – A-12 Pit Surface Water Diversion Alternatives* – showing proximity of previously mined areas, overburden areas, and Mill Shale Piles to the Project.




LEGEND

- Alternative A: North Pipeline
- Alternative B: South Pipeline
- Existing Culvert
- Existing Drainage
- Flow Direction
- Major Spring
- Road
- Railroad
- Outline of Pit as Mined
- Mill Shale Pile
- Overburden Area

0 1,000 2,000 FEET

1:12,500

**REFERENCE(S)**
1.ESRI WORLD IMAGERY, DIGITALGLOBE, 8/2/2018
2. COORDINATE SYSTEM: NAD 1983 STATEPLANE IDAHO EAST FIPS 1101 FEET

CLIENT
FMC/SIMPLOT

CONSULTANT
GOLDER

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|---|---|
| YYYY-MM-DD | 2020-07-21 |
| DESIGNED | KWW |
| PREPARED | HJ |
| REVIEWED | FS |
| APPROVED | JC |

PROJECT
GAY MINE
A-12 SURFACE WATER DIVERSION

TITLE
**A-12 PIT SURFACE WATER DIVERSION ALTERNATIVES**

| PROJECT NO. | PHASE | REV. | FIGURE |
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